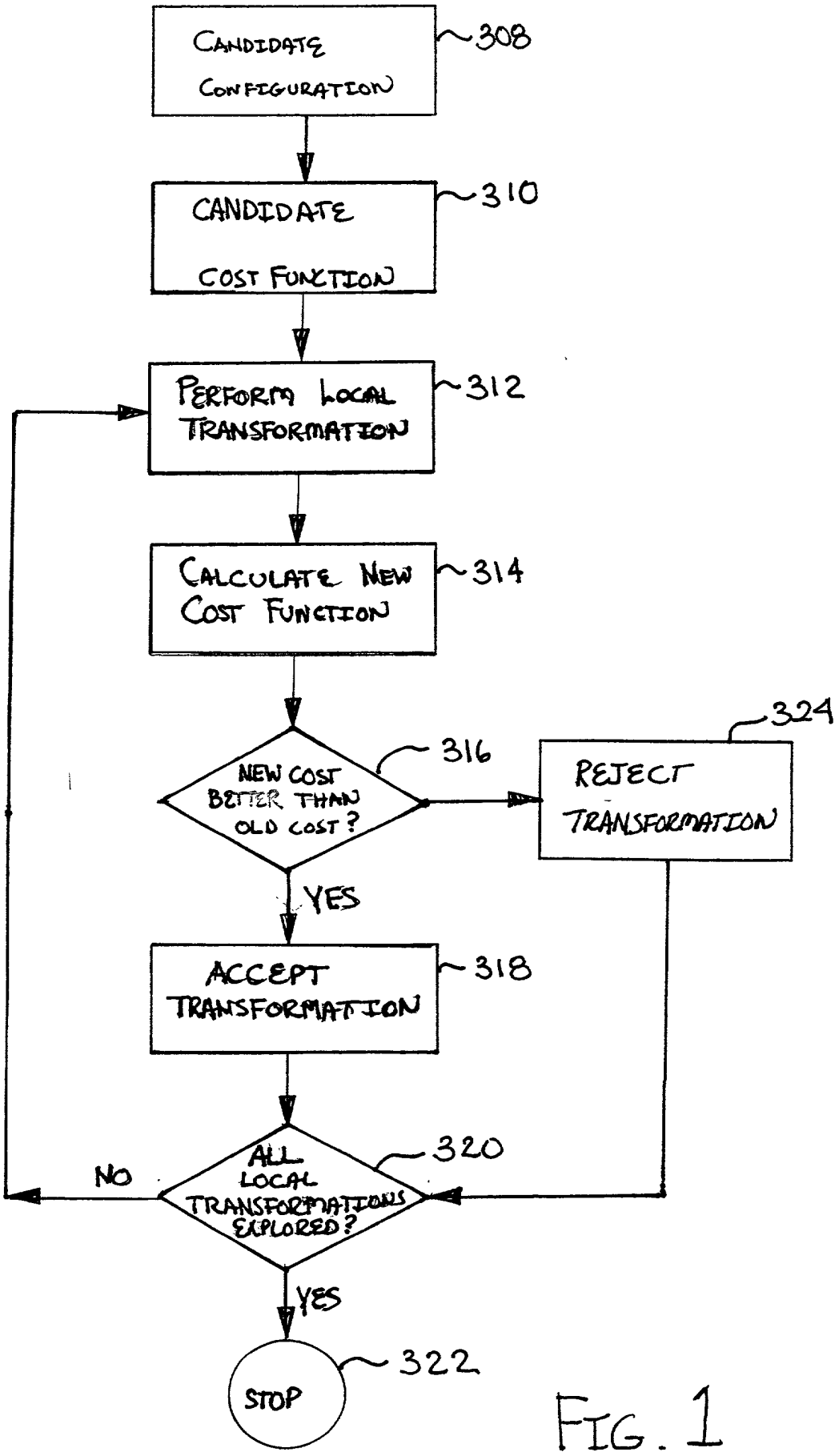

CANDIDATE CONFIGURATION
308
CANDIDATE COST FUNCTION
310
PERFORM LOCAL TRANSFORMATION
312
CALCULATE NEW COST FUNCTION
314
NEW COST BETTER THAN OLD COST?
316
REJECT TRANSFORMATION
324
YES
ACCEPT TRANSFORMATION
318
ALL LOCAL TRANSFORMATIONS EXPLORED?
320
NO
YES
STOP
322

FIG. 1

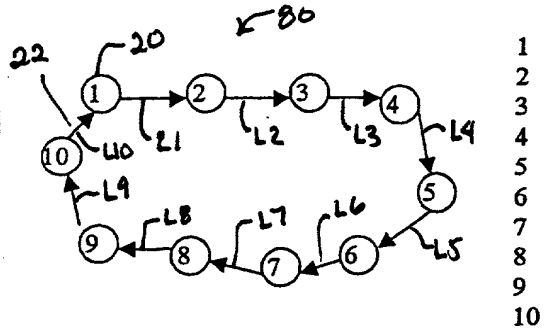


FIG. 2

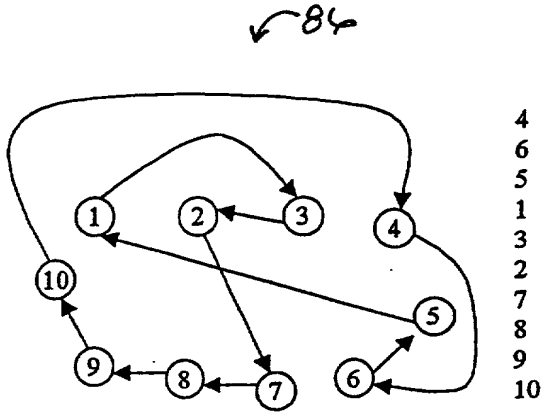


FIG. 5

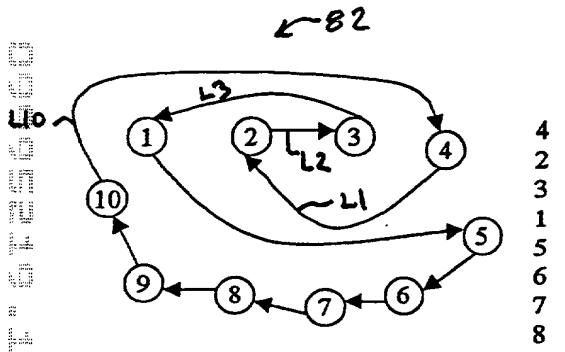


FIG. 3

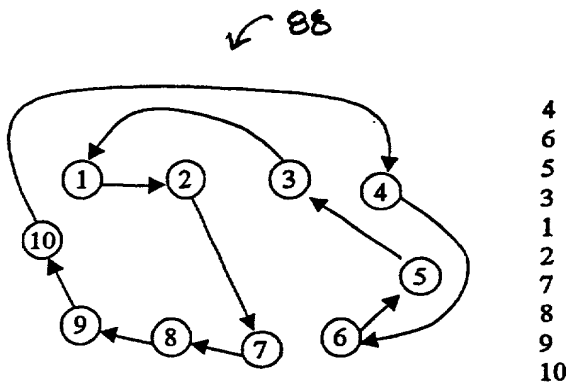


FIG. 6

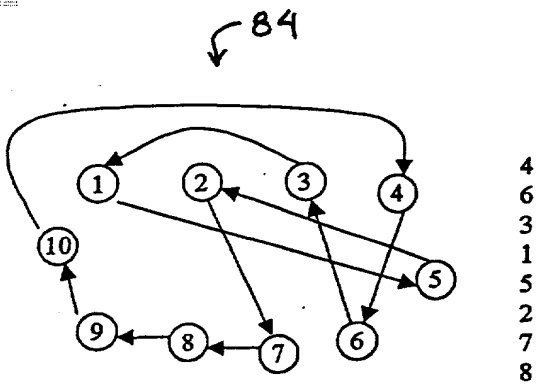


FIG. 4

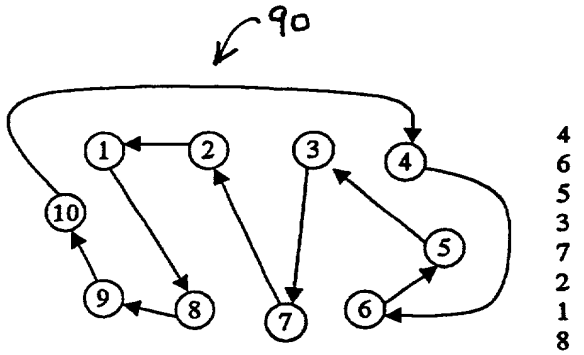


FIG. 7

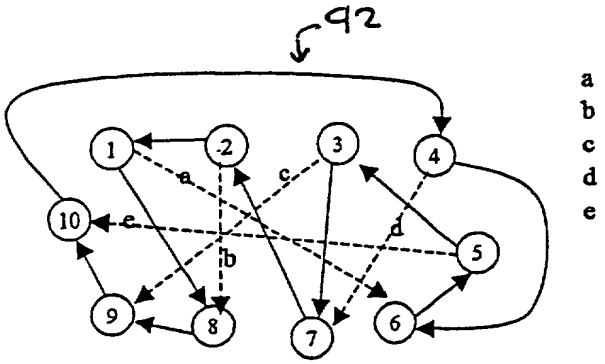


FIG. 8

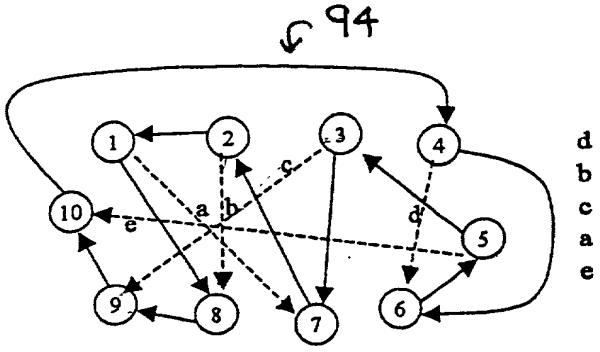


FIG. 9

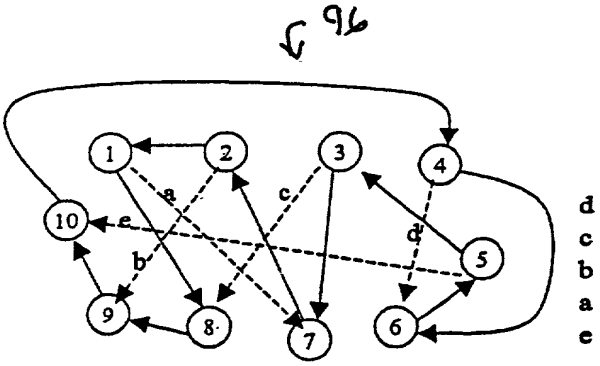


FIG. 10

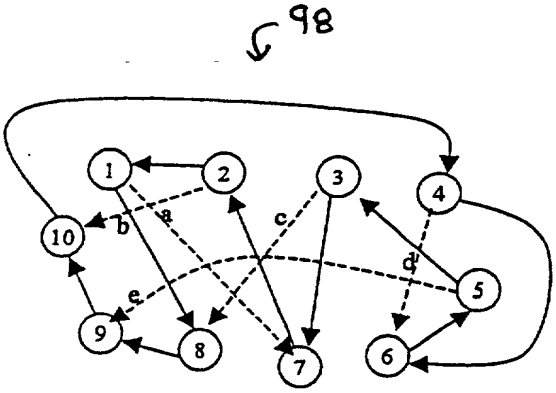


FIG. 11

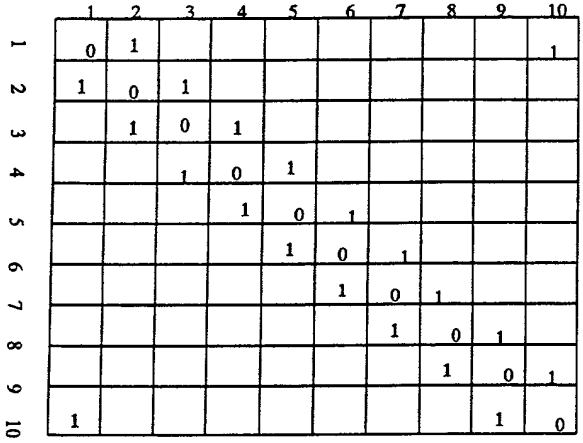


Figure Connectivity of Figure 2

12

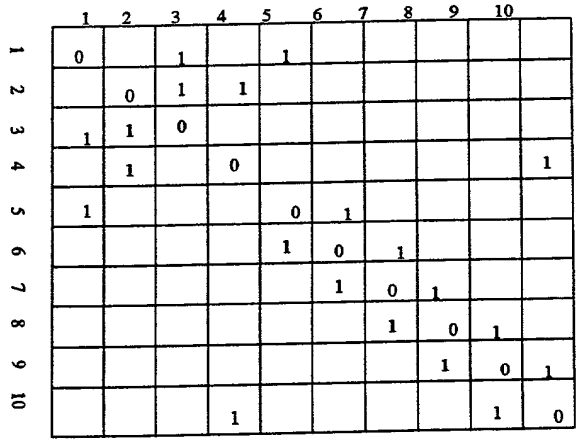


Figure 4. Connectivity of Figure 3

13

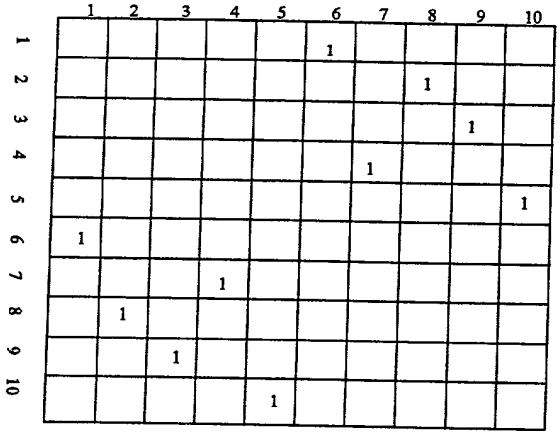


Figure ~~5~~. Crosslink connectivity of Figure ~~2-a~~

8

14

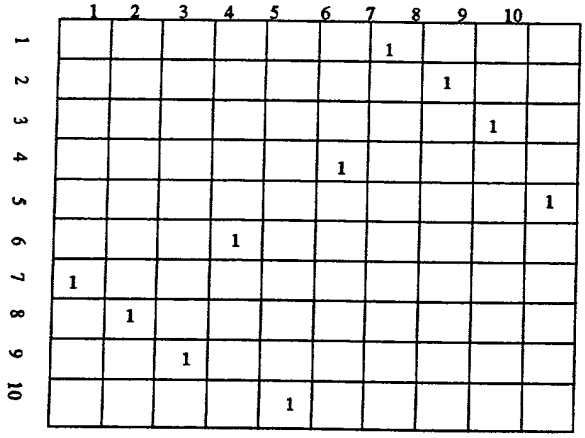


Figure ~~6~~. Crosslink connectivity of Figure ~~2-b~~

9

~~14~~

~~#6~~

15

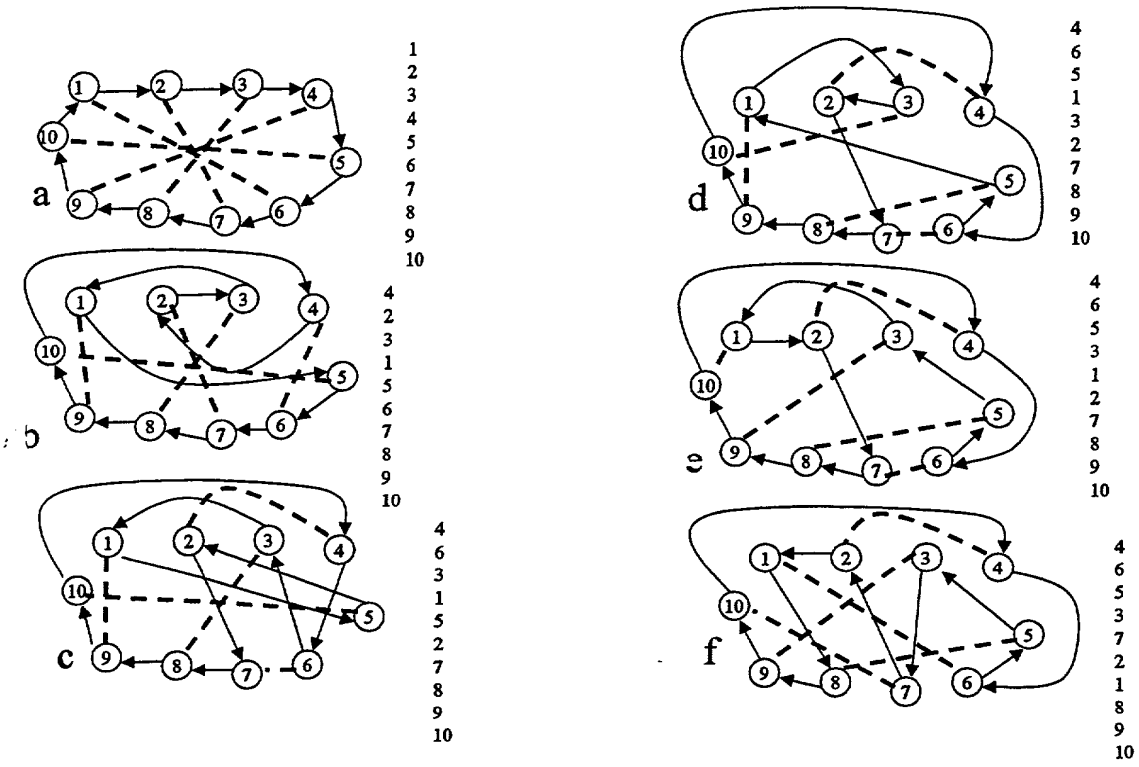
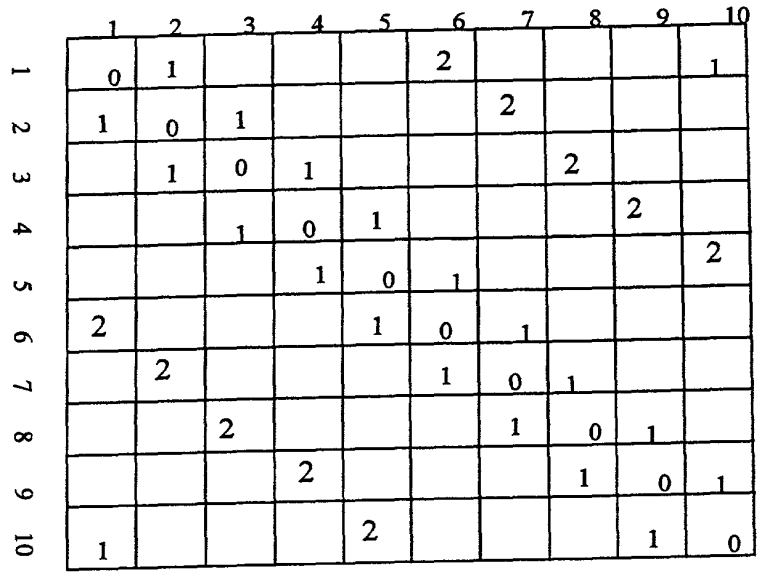


Figure 7: Optimization example using loop and crosslink optimization simultaneously

FIGS. 16a - 16f



	1	2	3	4	5	6	7	8	9	10
1	0	1				2				1
2	1	0	1				2			
3		1	0	1				2		
4			1	0	1				2	
5				1	0	1				2
6	2				1	0	1			
7		2				1	0	1		
8			2				1	0	1	
9				2				1	0	1
10	1				2				1	0

17

Figure : Link matrix with loop links and crosslinks

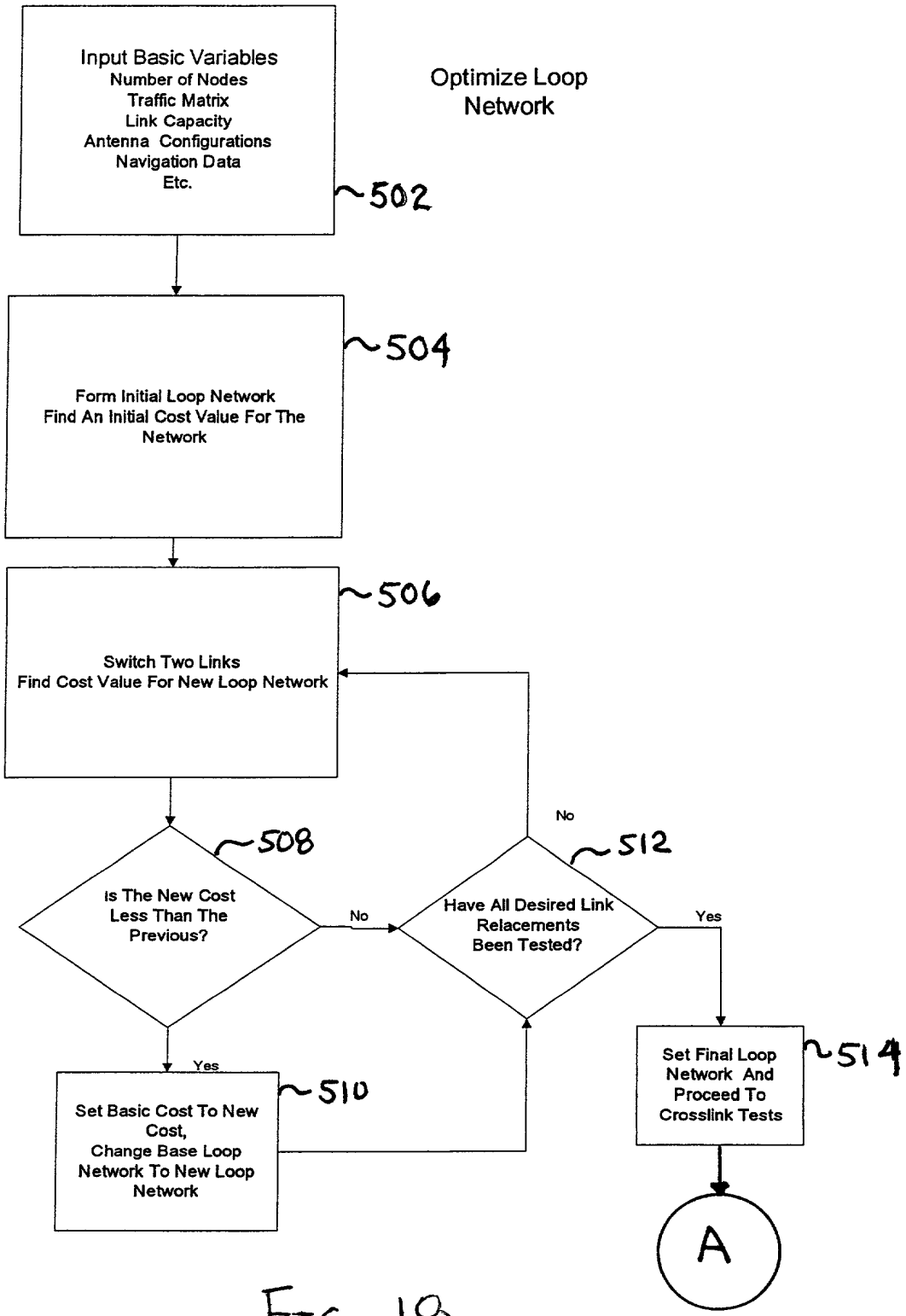

Optimize Loop Network
Input Basic Variables
Number of Nodes
Traffic Matrix
Link Capacity
Antenna Configurations
Navigation Data
Etc.
502
Form Initial Loop Network
Find An Initial Cost Value For The Network
504
Switch Two Links
Find Cost Value For New Loop Network
506
Is The New Cost Less Than The Previous?
508
No
Have All Desired Link Relacements Been Tested?
512
No
Yes
Yes
Set Basic Cost To New Cost, Change Base Loop Network To New Loop Network
510
Set Final Loop Network And Proceed To Crosslink Tests
514
A

FIG. 18

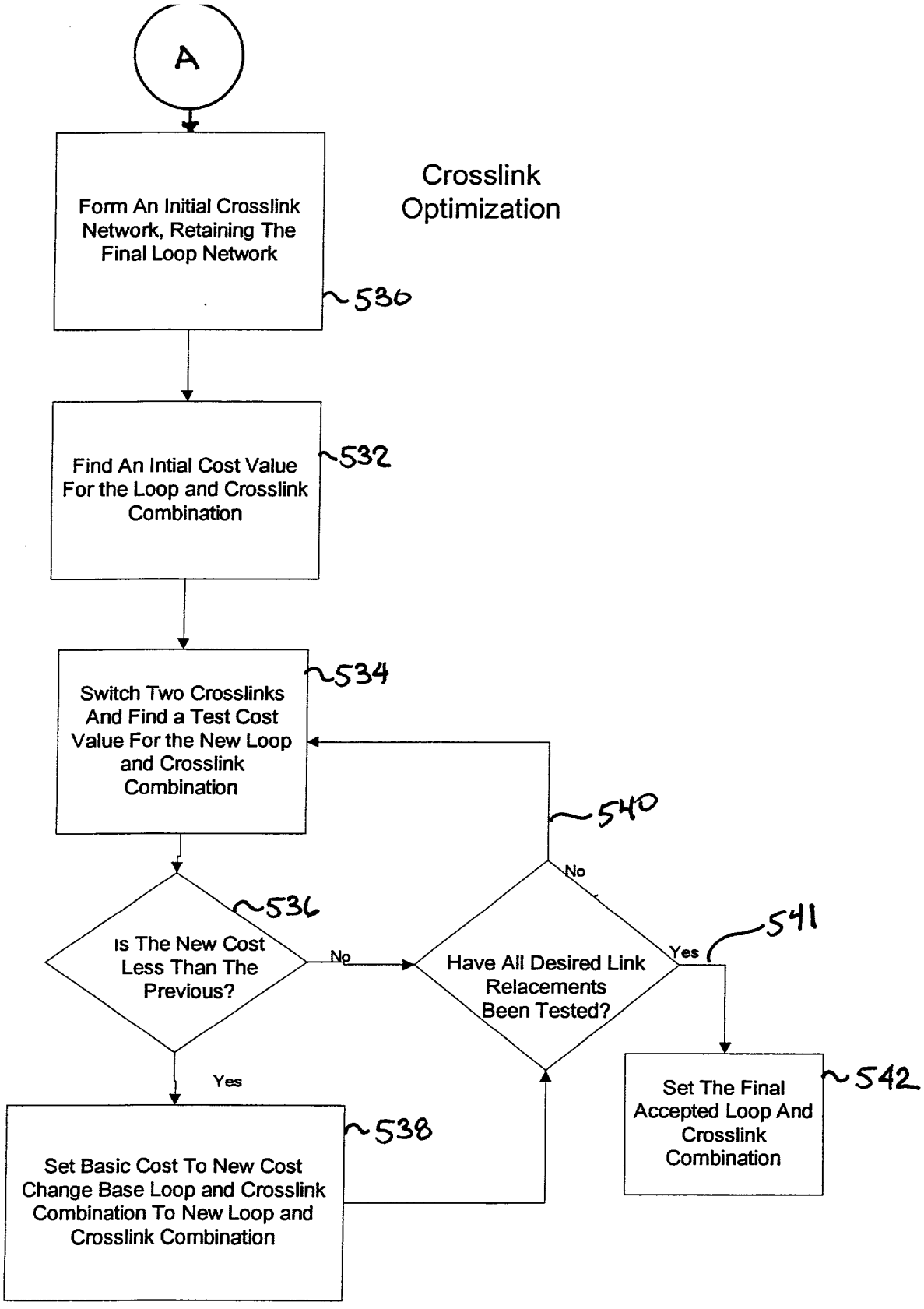

A
Crosslink Optimization
Form An Initial Crosslink Network, Retaining The Final Loop Network
536
Find An Intial Cost Value For the Loop and Crosslink Combination
532
Switch Two Crosslinks And Find a Test Cost Value For the New Loop and Crosslink Combination
534
540
Is The New Cost Less Than The Previous?
536
No
Have All Desired Link Relacements Been Tested?
541
No
Yes
Yes
Set Basic Cost To New Cost Change Base Loop and Crosslink Combination To New Loop and Crosslink Combination
538
Set The Final Accepted Loop And Crosslink Combination
542

FIG. 19

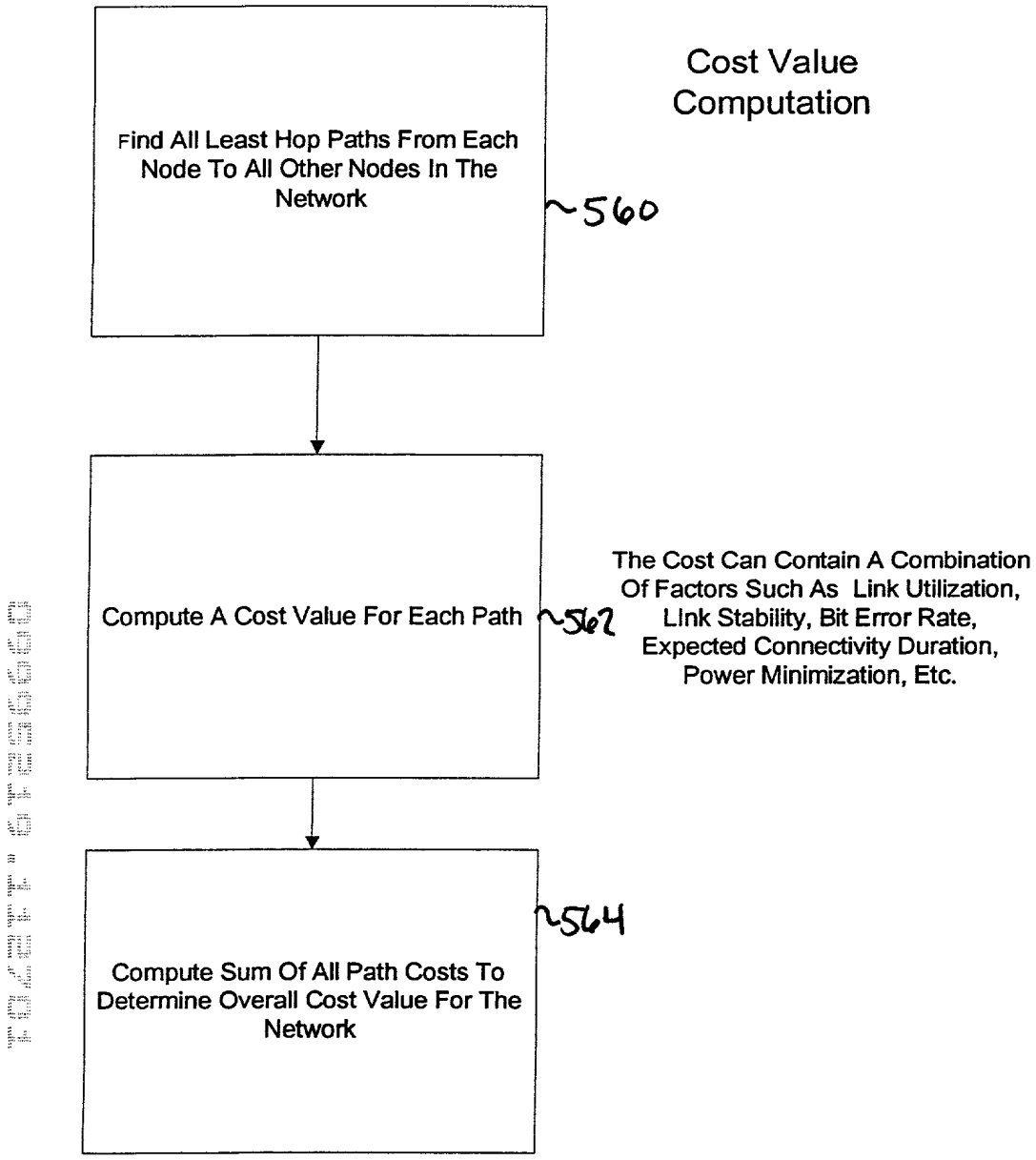

Cost Value Computation
Find All Least Hop Paths From Each Node To All Other Nodes In The Network
560
Compute A Cost Value For Each Path
562
The Cost Can Contain A Combination Of Factors Such As Link Utilization, Link Stability, Bit Error Rate, Expected Connectivity Duration, Power Minimization, Etc.
564
Compute Sum Of All Path Costs To Determine Overall Cost Value For The Network

FIG. 20

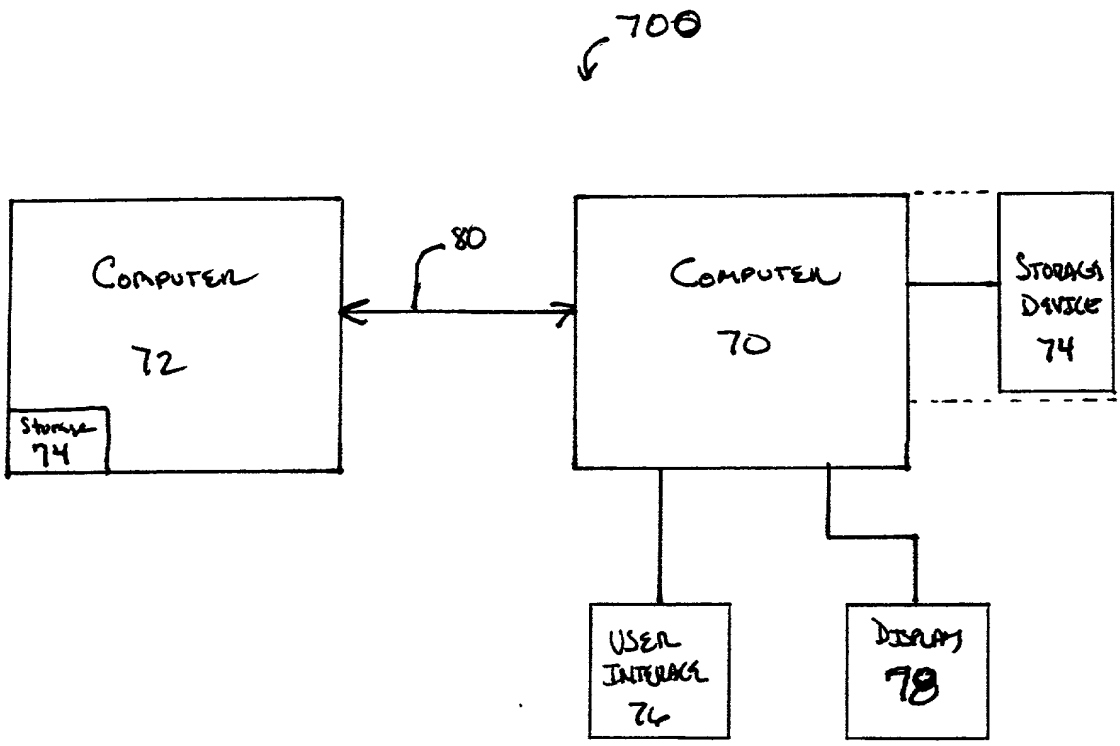

700
Computer
72
Storage
74
80
Computer
70
Storage
Device
74
User
Interface
76
Display
78

FIG. 21